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IS 5971 (2011): SHIPBUILDING — STRUM BOXES [TED 17: Shipbuilding]

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पोत निर्माण — स्ट्रम बक्से

(पहला पुनरीक्षण)

Indian Standard

SHIPBUILDING — STRUM BOXES

(First Revision)

ICS 47.020.30

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BUREAU OF INDIAN STANDARDS
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NEW DELHI 110002

April 2011 **Price Group 2**

Shipbuilding Sectional Committee, TED 17

FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Shipbuilding Sectional Committee had been approved by the Transport Engineering Division Council.

This standard was first published in 1970. In the revised standard square strum boxes have been included besides the cylindrical strum boxes.

In the formulation of this standard considerable assistance have been drawn from ISO 6454 : 1984 ‘Shipbuilding — Strum boxes’, issued by the International Organization for Standardization (ISO).

Suction ends of pipes in hold spaces and tunnel wells have to be enclosed in strum boxes having perforation. The combined area of such perforations have to be not less than twice that of the end of the suction pipe. Strum boxes are to be constructed in such a manner that they can be cleared without breaking any joint of the suction pipe.

On ships, the strum box is also known as rose box.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 ‘Rules for rounding off numerical values (*revised*)’. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

SHIPBUILDING — STRUM BOXES

(First Revision)

1 SCOPE

This standard specifies the major dimensions of strum boxes installed at the end of bilge suction pipes to prevent pipe obstruction by solid matter. The strum boxes covered in this standard are suitable for deep sea ships and inland navigation ships.

Strum boxes required for bilge suction pipes in machinery spaces and shaft tunnels, are beyond the scope of this standard.

NOTE — Users of this standard should note that while observing the stated requirements, they should note that while observing the stated requirements, they should at the same time ensure compliance with such statutory requirements, rules and regulations as may be applicable.

2 DEFINITION

For the purpose of this standard, the following definition shall apply.

2.1 Strum Box Nominal Size (*DN*) — The nominal size of the bilge pipe.

3 TYPES OF STRUM BOXES

3.1 Types Based on Shape of Box and Perforations

a) *Type R2* — Cylindrical box, with a perforated cylindrical part and a non-perforated top plate.

b) *Type R3* — Cylindrical box, with a perforated cylindrical part and a perforated top plate.

c) *Type S2* — Square box, with a perforated sides and a non-perforated top plate.

d) *Type S3* — Square box, with a perforated sides and a perforated top plate.

NOTES

1 The code used for indicating the type of strum box based on shape of box and perforations, comprises a letter for the form of strum box (R: Round, S : Square) and a number for the minimum ratio of the total hole area to the pipe section (*see* **5.2**).

2 Where the strum box is provided with a base which is perforated this area shall be disregarded for the purposes of **5**.

3.2 Types Based on Hinge/Locking Pin

a) *Type P1* — One is having hinge on one side and locking pin on the other side.

b) *Type P2* — One is having locking pin on both the sides.

4 DIMENSIONS

Dimensions for strum boxes shall be as shown in Table 1; read with Fig.1, where D_e is the outside diameter of the pipe.

5 PERFORATED PLATE

5.1 The area of each hole shall be approximately 79 mm^2.

5.2 The ratio of the total hole area to the pipe section

$$\left(\frac{\pi}{4} - D_e^2\right) \text{ shall be:}$$

a) greater than 2 for models R2 and S2; and

b) greater than 3 for models R3 and S3.

5.3 The ratio of the total hole area to the total perforated plate area shall be not less than 0.30.

6 CONSTRUCTION

6.1 Strum boxes shall be constructed in such a manner as to permit easy dismantling.

Table 1 Dimensions of Strum Boxes

All dimensions in millimetres.

DN	32[2]	40[2]	50	65	80	100	125	150	200	250	300	350
D_e	42.4	48.3	60.3	76.1	88.9	114.3	139.7	168.3	219.1	273	323.9	355.6
H	43	49	61	76	89	115	140	169	220	273	324	356
h[1]	15	17	21	26	30	39	47	57	73	91	108	119
D	85	95	120	150	180	230	280	335	440	545	650	710
a	65	75	95	120	140	180	220	265	345	430	510	560

[1] Dimension *h* is to be obtained by adjustment during the installation of the piping system.

[2] See Note under **1**.

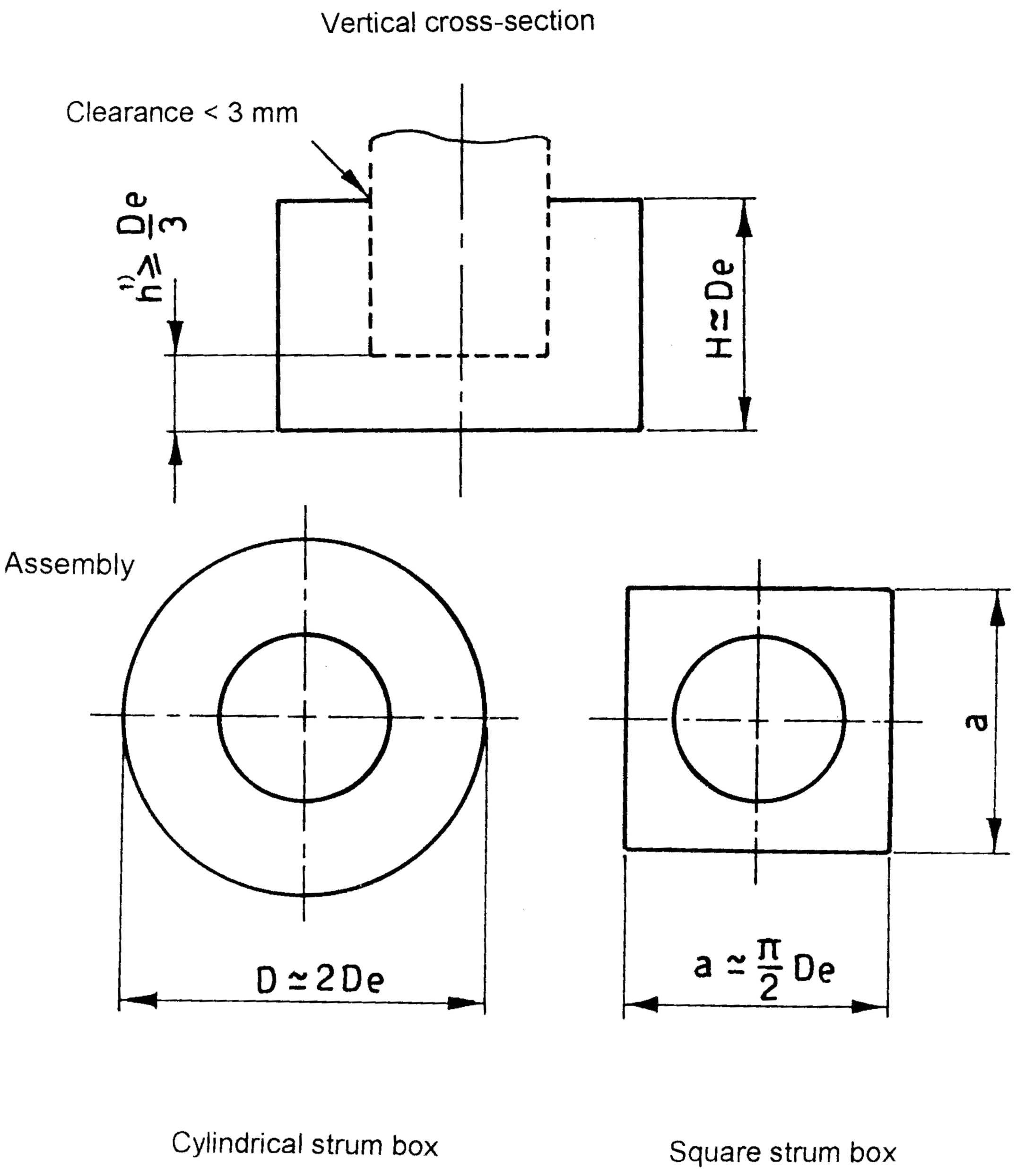

FIG. 1 DIMENSIONS OF STRUM BOXES

6.2 The gap between the pipe and the bore of the top plate shall not exceed 3 mm.

7 MATERIALS

7.1 Strum boxes fabricated from carbon steel shall adhere to thickness requirement as given below:

Strum Box Nominal Size DN mm	*Minimum Thickness of Carbon Steel Plate* mm
Up to 150	3
200 - 300	5
350	6

7.2 Material of pin shall be either stainless steel or carbon steel.

7.3 After manufacture strum boxes and pin, if made of carbon steel shall be hot dip galvanized, or covered with any other efficient coating subject to agreement between the supplier and the purchaser. In the case of protection by hot dip galvanizing, the mass of zinc deposited on all faces shall be not less than 600 g/m^2.

7.4 Subject to agreement between supplier and purchaser any alternative material of suitable thickness may also be used providing it is acceptable for the environmental conditions (corrosion, etc) and the associated materials.

8 DESIGNATION

A strum box that conforms to this standard shall be designated, in order, by,

a) Name : strum box;
b) Reference to this standard IS 5971;
c) Type (*see* **3**) : R2, R3, S2 or S3 and P1 or P2; and
d) Nominal size (*DN*) (*see* **2**): for example, 300.

Example:

Cylindrical strum box with a perforated top plate (Type R3), having hinge and locking pin on the same side (P2) nominal size (DN) 300 mm:

Strum box IS 5971-R3-P2-300.

9 MARKING

9.1 Strum boxes shall be marked with the following:

a) Identification mark of the manufacturer; and
b) Designation of the strum box.

9.2 BIS Certification Marking

Strum boxes may also be marked with the Standard Mark.

9.2.1 The use of the Standard Mark is governed by the provisions of *Bureau of Indian Standards Act*, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

Bureau of Indian Standards

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Amendments Issued Since Publication

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